

ASSIGNMENT ON DATA VISUALIZATION IN PYTHON

BY

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Q.1

```
import matplotlib.pyplot as plt

# Data
years = [2010, 2011, 2012, 2013, 2014, 2015, 2016]
city_a_population = [500000, 550000, 600000, 650000, 700000, 750000, 800000]
city_b_population = [800000, 850000, 900000, 950000, 1000000, 1050000, 1100000]
city_c_population = [1000000, 1050000, 1100000, 1150000, 1200000, 1250000, 1300000]
city_d_population = [1200000, 1250000, 1300000, 1350000, 1400000, 1450000, 1500000]

# Plotting
plt.figure(figsize=(8, 5))
plt.plot(years, city_a_population, marker='o', label='City A', color='blue')
plt.plot(years, city_b_population, marker='o', label='City B', color='orange')
plt.plot(years, city_c_population, marker='o', label='City C', color='green')
plt.plot(years, city_d_population, marker='o', label='City D', color='red')

# Customizing the plot
plt.title('Population Growth of Cities Over Time')
plt.xlabel('Year')
plt.ylabel('Population')
plt.xticks(years)
plt.legend()

# Show plot
plt.show()
```

Q.1

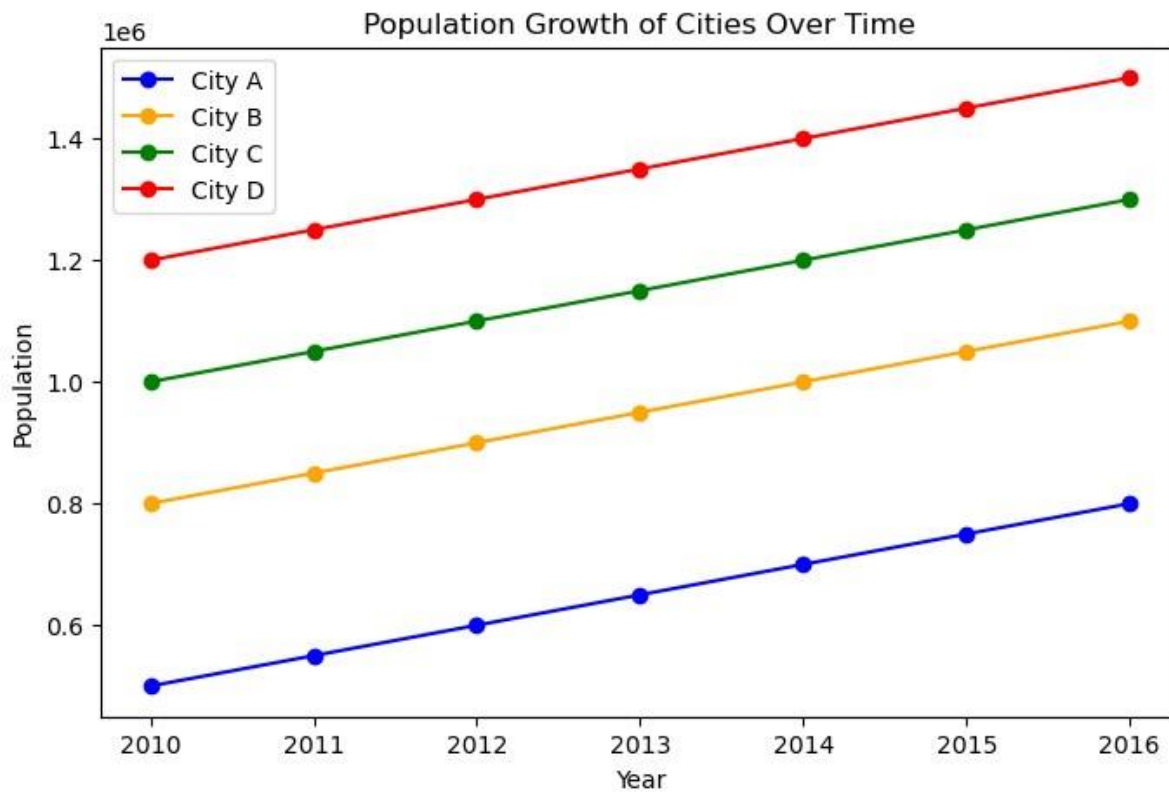
localhost:8888/notebooks/DataVisualization%20assignment.ipynb

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Code

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Q.2

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 Code ▾

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```
#test scores: [93, 57, 61, 54, 51, 53, 87, 81, 83, 85]
```

```
import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd
```

```
# Data
```

```
data = {
    'Hours Studied': [1, 2, 3, 4, 5, 6, 7, 8, 9, 10],
    'Test Scores': [93, 57, 61, 54, 51, 53, 87, 81, 83, 85]
}
```

```
# Create a DataFrame
```

```
df = pd.DataFrame(data)
```

```
# Create a scatter plot
```

```
plt.figure(figsize=(8, 5))
sns.scatterplot(data=df, x='Hours Studied', y='Test Scores', color='blue', s=100)
```

```
# Adding a regression line
```

```
sns.regplot(data=df, x='Hours Studied', y='Test Scores', scatter=False, color='green')
```

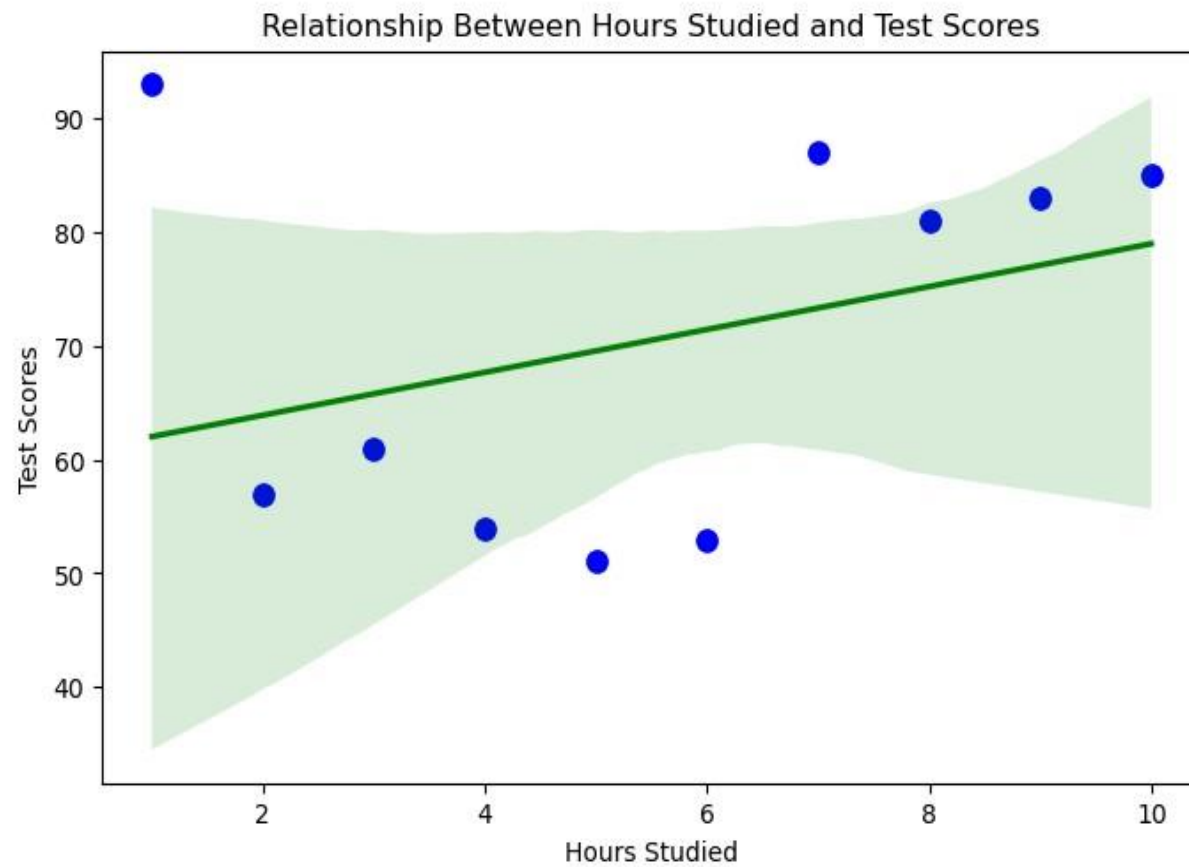
```
# Customize the plot
```

```
plt.title('Relationship Between Hours Studied and Test Scores')
plt.xlabel('Hours Studied')
plt.ylabel('Test Scores')
```

```
# Show plot
```

```
plt.show()
```

Q.2



Q.3

```
#Create a bar chart using matplotlib pyplot that shows the total sales for each month of the year. Use the following data:
```

```
#Month: ["Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"]
```

```
#Sales: [11860, 10480, 4997, 5523, 13965, 6011, 13158, 9533, 5158, 9058, 11346, 6675]
```

```
import matplotlib.pyplot as plt
```

```
# Data
```

```
months = ["Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"]
```

```
sales = [11860, 10480, 4997, 5523, 13965, 6011, 13158, 9533, 5158, 9058, 11346, 6675]
```

```
# Creating the bar chart
```

```
plt.figure(figsize=(8, 5))
```

```
plt.bar(months, sales, color='green')
```

```
# Adding titles and labels
```

```
plt.title('Monthly Sales Data')
```

```
plt.xlabel('Months')
```

```
plt.ylabel('Total Sales')
```

```
plt.grid(axis='y')# Adding grid for better analysis
```

```
# Show plot
```

```
plt.show()
```

Q.3

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